

REMARKS

The Office Action Summary does not indicate whether the drawings filed on December 3, 2003 are acceptable. Therefore Applicant requests that the Examiner indicate whether the drawings are acceptable in the next communication.

Claims 1-74 were presented for examination. The Office Action rejects claims 1-16, 18-23, 25, 26, 28-34, 36-42, 44, 48, 50, 59, 60, 62, 63, 66 and 68-73 and allows claim 74. The Office Action states that claims 17, 24, 27, 35, 43, 45-47, 49, 53, 55-58, 61, 64, 65 and 67 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. Applicant herein amends claims 1, 37, 51, 69 and 71-73. Claim 51 is amended for proper dependency and now depends from claim 50. Claims 1-74 remain pending in the application.

Rejection of Claims 1-16, 18-23, 25, 26, 28-34, 36-42, 44, 48, 50, 59, 60, 62, 63, 66 and 68-73 under 35 U.S.C. § 102(b)

The Office Action rejects claims 1-16, 18-23, 25, 26, 28-34, 36-42, 44, 48, 50, 59, 60, 62, 63, 66 and 68-73 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,495,131 by Goldie et al. (hereafter "Goldie"). Applicant respectfully traverses the rejection to the extent it is maintained against the claims as amended because the cited reference does not teach or suggest each and every element of Applicant's claimed invention.

Applicant's invention relates to a linear reluctance motor having a stator and a shuttle. The stator and shuttle each include a set of spaced blades. Each blade includes alternating low permeability and high permeability teeth. The blades of the stator are interleaved with the blades of the shuttle. The motor also includes an active component to produce a flux through the interleaved blades in a direction substantially orthogonal to the actuation axis of the motor. The active component can be coupled to either the stator or the shuttle, and includes multiple phases. Each phase includes a set of blades, a flux return portion and a coil wound around the

flux return portion. Advantageously, the linear reluctance motor has a high force density in comparison to electric motors.

Goldie discloses a linear motor having interleaved blades. Referring to FIGS. 7 and 8 of Goldie, the stator blades include high permeability teeth separated by slots 140. Windings 142 for carrying the current are located in the slots 140 and a flux is produced in a direction transverse to the interleaved blades.

In contrast to Goldie, the stator blades and the shuttle blades of Applicant's invention are passive, i.e., the blades have no windings or coils, and carry no electrical current. Instead of having conductors embedded in the blades, the coil is wound around the flux return portion 17 of the active component as shown, for example, in FIGS. 4 to 13 of Applicant's specification. This configuration allows the moving and stationary blade sets to be nearly identical and provides additional advantages over the motor of Goldie. Fabricating blades with embedded windings is difficult and costly, and would generally result in thicker and possibly weaker blades with a coarser tooth pitch. Thus fewer blades can be accommodated in a fixed volume and more amp-turns are necessary to achieve the same electromagnetic shear pressure. Moreover, thicker blades are less flexible sideways and therefore the machine disclosed in Goldie generally requires larger air gaps to avoid blade interference possible with lateral alignment errors, again requiring more amp-turns to achieve a given electromagnetic shear pressure.

Representative claim 1 as now set forth recites in pertinent part "an active component ... divided into at least N phases, each phase including a set of blades, a flux return portion, and a coil wound around the flux return portion to produce flux through the sets of interleaved blades in a direction substantially transverse to the actuation axis." As described above, Goldie does not teach or suggest a coil or winding wound around the flux return portion.

Thus Goldie does not teach or suggest every limitation in representative claim 1 and Applicant respectfully requests that the rejection of claim 1 under 35 U.S.C. 102(b) be withdrawn. Independent claims 69 and 71-73 as now set forth include similar language to

claim 1 and therefore are patentable for at least those reasons provided with respect to claim 1. Claims 2-16, 18-23, 25, 26, 28-34, 36-42, 44, 48, 50, 59, 60, 62, 63, 66, 68 and 70 depend directly or indirectly from patentable independent claims 1 and 69, and incorporate all of the limitations of the appropriate independent claim. Therefore Applicant submits that these dependent claims are also patentably distinguishable over the cited reference for at least those reasons provided in connection with claims 1 and 69, and Applicant requests that the rejection against these dependent claims also be withdrawn.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims that have not been expressed.

CONCLUSION

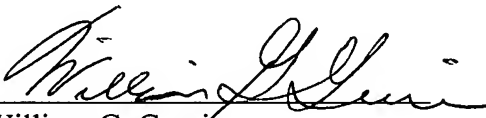
In view of the remarks made herein, Applicant submits that the application is in condition for allowance and requests early favorable action by the Examiner.

If the Examiner believes that a telephone conversation with the Applicant's representative would expedite allowance of this application, the Examiner is cordially invited to call the undersigned at (508) 303-2003.

Respectfully submitted,

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